

REMARKS

I. Introduction

Claims 19-36 are currently pending in the present application. Claims 19-28, 30, 31 and 33-36 are rejected, and claims 29 and 32 are objected to. In response, Applicants have amended claims 19-25, 27, 33 and 35-36. In view of the following remarks, it is respectfully submitted that pending claims 19-36 are allowable, and reconsideration of these claims is respectfully requested.

Applicants thank the Examiner for accepting the drawings which were previously submitted.

II. Rejection of Claims 19-28, 30, 31 and 33-36 under 35 U.S.C § 102(b)

Claims 19-28, 30, 31 and 33-36 are rejected under 35 U.S.C § 102(b) as being anticipated by WO 99/21261 A (which corresponds to U.S. Patent 6,208,931). Applicants respectfully traverse this rejection, for the following reasons.

To anticipate a claim under § 102(b), a single prior art reference must identically disclose each and every claim element. See Lindeman Maschinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). If any claimed element is absent from a prior art reference, it cannot anticipate the claim. See Rowe v. Dror, 112 F.3d 473, 478 (Fed. Cir. 1997). Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged exactly as in the claim. Lindeman, 703 F.2d 1458 (Emphasis added). Additionally, not only must each of the claim limitations be identically disclosed, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the inventions of the rejected claims, as discussed above. See Akzo, N.V. v. U.S.I.T.C., 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986). To the extent that the Examiner may be relying on the doctrine of inherent disclosure for the anticipation rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied art.” (See M.P.E.P. § 2112;

emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Amended independent claim 19 recites, in relevant parts, “at least one speed-controlled electric machine coupled to the drive shaft of the internal combustion engine during idling; wherein, during idling, the engine management system controls the internal combustion engine in one of open and closed loop as a function of power demands of an electrical system of the motor vehicle; and wherein during idling the internal combustion engine is speed-controlled with the aid of the electric machine.” Amended independent claim 27 recites substantially similar features as the above-recited features of claim 19. As explained in greater detail below, Applicants note that the actual teachings of the cited reference clearly do not disclose or suggest that: a) the electric machine of the motor vehicle (i.e., the generator 13 of the cited reference) is a speed-controlled electric machine, which is coupled to the drive shaft of the engine during idling; b) during idling, the engine management system controls the engine in one of open or closed loop as a function of power demands of the electric system of the motor vehicle; or c) the engine is speed-controlled with the aid of the electric machine (i.e., the generator 13) during idling.

WO 99/21261 A (hereinafter referred to as the ‘261 publication) and the corresponding U.S. Patent 6,208,931 (hereinafter referred to as the ‘931 patent) teach an apparatus for energy distribution in a motor vehicle having an engine, a transmission 14, and a generator 13. The apparatus includes a control arrangement 10 which has a voltage regulator 21 for the generator 13 and a supply system managing device 20. The supply system managing device 20 includes a device 24 for establishing an energy management strategy and a pre-control device 23 for generating a differential output for input to the device 24 according to an actual power and required power with respect to reference voltage. (See Abstract, ‘931 patent). The supply system managing device 20 “operates the generator 13, the battery 12, the drive train, in particular the motor and transmission 14, and the consumers of the vehicle . . . , so that, on the average, a balanced charge state is ensured in the vehicle supply system and the voltage position is maintained within a specified range or margin. (See ‘931 patent, column 6, lines 57 to 64).

As shown in Fig. 1 of the '931 patent, an arrow accompanying variable n_{mot} shown between the "engine + transmission" block 14 and the generator block 13 "symbolizes that **the motor speed or internal combustion engine speed n_{mot} is essential for the operation of the generator 13**. As is known, the generator 13 is driven by the engine, possibly via a transmission." (See '931 patent, column 6, lines 44 to 48). There is simply no hint in the '931 patent (or in the '261 publication) that the above-quoted statement does not apply during idling as well, i.e., the generator operates as a function of the engine speed n_{mot} . More generally, the '931 patent (or the '261 publication) fails to suggest that the control of the engine during idling differs from the control of the engine during normal operation. In addition, there is no disclosure in the '931 patent or the '261 publication that: a) the electric machine of the motor vehicle (i.e., the generator 13) is a speed-controlled electric machine, which is coupled to the drive shaft of the engine during idling; b) during idling, the engine management system controls the engine in one of open or closed loop as a function of power demands of the electric system of the motor vehicle; or c) the engine is speed-controlled with the aid of the electric machine (i.e. the generator 13) during idling.

The present invention provides that, during idling, the speed-controlled electric machine is used for controlling the idling speed of the internal combustion engine, a task which, during normal operation, is performed by the engine management system. During idling, the engine management system of the present invention is used for controlling the engine in one of open and closed loop as a function of power demands of the electrical system of the motor vehicle. The present invention is clearly different from the prior hybrid drive systems in which the power demands of the electrical system of the motor vehicle are the basis for the regulation of the electric machine, i.e., of the generator, with the aid of its voltage regulator. The '931 patent and the '261 publication merely disclose this prior conventional operation in which (a) a power supply set voltage (U_s) is determined from an actual power and a required power with respect to reference voltage, (b) the power supply set voltage (U_s) is compared with an actual voltage (U_{ist}) to produce a comparison result, and (c) the voltage regulator 21 regulates the generator 13 according to the comparison result. (See Abstract of the '931 patent).

For at least the foregoing reasons, claims 19 and 27, as well as dependent claims 20-26, 28, 30, 31 and 33-36, are allowable over the '261 publication and the corresponding '931 patent.

III. Allowable Subject Matter

Claims 29 and 32 are objected to as being dependent upon a rejected base claim, but the Examiner indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 29 and 32 ultimately depend on claim 27, which has been explained to be in allowable condition. Accordingly, Applicants submit that claims 29 and 32 are allowable in their present dependent form by virtue of their ultimate dependence on allowable claim 27.

IV. Conclusion

In view of all of the above, it is respectfully submitted that all of the presently pending claims are in allowable condition. Prompt reconsideration and allowance of the application are respectfully requested.

Respectfully submitted,

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